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ABSTRACT

This paper discusses issues central to communicative/cognitive development in children with visual impairments who also have other disabilities, and presents a multi-modal model of augmentative alternative communication delivery that includes tangible symbols, language input strategies, voice output communication devices, software programs with switches, and modified keyboards and literacy enhancing activities. The social challenges that children with visual impairments face because of their lack of visual input are discussed, and the need to consider the effects of visual impairments on the child's language development and language system when selecting augmentative devices and designing alternative communication systems is emphasized. Different types of voice output communication aids are described, along with ways augmentative communication devices can be used to include a child in story reading time and to hold a child's attention. (CR)

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AAC STRATEGIES FOR YOUNG CHILDREN WITH VISION IMPAIRMENT AND MULTIPLE DISABILITIES

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OBJECTIVES

1. To present the issues central to communicative/cognitive development in the visually impaired/blind child with multiple impairments.
2. To present a multi-modal model of AAC delivery including tangible symbols, language input strategies, voice output communication devices, software programs with switches and modified keyboards and literacy enhancing activities.

INTRODUCTION

It is estimated that 80-90% of early learning is based on visual input. Vision serves as a primary stimulus for learning as well as an integrator of input from other sensory channels. Without vision as a central integrator, blind children often rely on the remaining senses of hearing, motor-kinesthetic feedback and smell to help them assign order and meaning to their world. For children with multiple disabilities, difficulties with hearing or motor development, sensory-motor integration, language development, learning disabilities, and problem solving make the task of meaning-making even more challenging.

Children with visual impairments often miss information that is important for the development of the social aspects of communication and the concepts or cognitive abilities that underlie the development of language. Parent-chiid interactions are often at risk from the start when the infant appears less responsive to their caretaker's overtures. Expressive communication skills begin with the cry of the infant indicating pain or hunger. When cries are answered and needs are met, the baby begins to understand the power of vocal communication. Sighted children establish and use an additional information exchange system involving eye gaze and pointing. By using eye gaze and pointing, the sighted child indicates interests in objects and people surrounding him. As the blind baby matures, caregivers have fewer clues as to the baby's interests and consequently ask many more questions to their blind children than to their sighted children revolving around child-centered topics. Overuse of questions and pronoun confusion are often exhibited by older blind children, at least somewhat because of this atypical language modeling by well-meaning caretakers. When selecting augmentative devices and designing alternative communication systems, the effects of congenital or acquired blindness or visual impairment on the child's language development and language system must be considered. The blind

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child's relationship to augmentative communication devices and tangible symbols may also be affected by attitudes towards object exploration. Many blind children display tactile defensiveness and may be reticent to explore objects which teachers and caregivers find interesting.

The goals of AAC intervention must be in alignment with a larger educational picture for these children. For many, the addition of AAC to form a multi-modal plan of intervention is a key into the child0s successful and active participation in their world.

ASSESSMENT

Planning for AAC implementation must follow a carefully performed assessment of the child's customary performance across a variety of settings. Assessment is best conducted through a collaborative process from all disciplines and caretakers involved with the child and best performed by specialists knowledgeable in the fields of visual impairment and AAC. Components include a combination of observational data, questionairres, checklists, developmental scales and, in some cases, formal testing. Once implementation of an AAC system has been achieved, ongoing monitoring and modification are mandatory.

LANGUAGE INPUT

It is important not to underestimate the role of language comprehension when planning for AAC implementation. Children can only communicate what they understand, regardless of their method of expression. For visually impaired children, receptive language and concept development must be facilitated by providing opportunities for first hand experience of the environment through touching, manipulating, moving, smelling and tasting in addition to listening to well formed repetitive language models.

Objects or tangible symbols provide the child with real life referents for some words. This has proven to be an extremely valuable augmentative input strategy for many visually impaired, multi-handicapped children. Referents must be carefully selected for their tactile rather than visual properties. A plastic banana neither smells nor feels like the real thing and will provide only confusion if presented to a blind child.

Children with visual impairments are at a clear disadvantage with respect to anticipating transitions between activities. If they do not understand the language of directions or fail to attend to them, they have no other clues to rely upon regarding the transitiion from one activity to the next. For this reason, calendar box schedules representing any length of time from the next step to the entire day's events are very helpful. Visually impaired children may respond to an organized array of objects, pictures, brailled cards or auditory messages or a combination of these.

AAC goals must be infused into all aspects of the academic and social curriculum. Using AAC within the context of functional routines provides real-time experience in independence and will minimize the carryover problems experienced by many multi-handicapped youngsters. When learning via routines the blind child is exposed to a predictable chain of related events, lending increased order and organization to the day. Functional routines can be incorporated easily into special education and regular education classrooms when designed and implemented through the collaborative efforts of all relevant personnel from the start. This is often the key toward successful inclusion of the blind multi-handicapped child into the classroom.

EXPRESSIVE COMMUNICATION

Use of a variety of voice output communication aids (VOCAs) may assist in concept aquisition and facilitate participation in communication routines and exchanges with both peers and adults. Single message devices, such as the Big Mack or the One Step by Ablenet can be used for routine greetings, requests or for filling in repetitive lines in songs or stories. Two message devices, such as the Twin Talk by Enabling Devices are useful for teaching visually impaired children to choose between two objects or

two utterances. The authors have used dual message devices to teach choicemaking at snack time and on Halloween, to repeat the two useful utterances, "Trick or Treat" and "Thank You." To tell a story or repeat a favorite song or nursery rhyme, we have used a one level message device, such as Cheap Talk 4 by Enabling Devices and Speak Easy by Able Net. Use of these devices with engaging auditory material prepares a child to search for and select the appropriate message square and to engage in sequential storytelling. This activity has been well loved by at least one blind boy at the California School for the Blind, primarily as it allowed him to perform a routine independently and to anticipate his favorite part of the story ("gobble, gobble, gobble") recorded in his own voice. For this six year old, non-verbal child, an abstract symbol (burlap glued to carboard, a felt circle, a wooden circle and a rubber square) were attached to each square of the VOCA, each signifying another message. For children with some vision, use of more symbolic tactile markers would be preferable. These devices have also traveled back and forth between school and home to play "home news" and "school news" recordings. This has been another highly motivating activity for the preschool aged child. Listening to parentÕs and siblingÕs voices telling home news at school and hearing the teacher's voice recounting school activities when at home has generated joy and a wealth of topics to explore. For some children, auditory scanning can be a beneficial method of providing choices which can then be activated by switches or touch selection.

Quality of voice is an important variable for this population. Ideally, an unfamiliar child of the same age and gender as the augmentative device user should become the child's "speech buddy", recording messages into the device to be used by the visually impaired child. It may confuse the child if someone very familiar to him records his messages, especially if he will be engaged in conversations with that person during the activity. Software generated communication boards provide many options for speech output and accessible interface.

Language serves many functions, including requesting objects or information, rejecting, commenting, giving and seeking information, expressing feelings and participating in social routines. The child's school and home programs should include means for the child to accomplish most if not all of these language functions. For most non-verbal children, a multimodal expressive communication system is usually best. Learning standard signs to signal to others, using tangible symbols or pictures to request, using vocalizations to indicate favorite activities or greet people, and using the VOCA to express feelings, make comments or use a more grammatically complex utterance than able to independently may all be components of a communication system.

LITERACY, RECREATION AND LEISURE

Since reading, writing, speaking and listening develop concurrently and interrelatedly, as claimed by the emergent literacy theorists, the importance of introducing literacy activities as close to birth as possible must be acknowledged. For the visually impaired child, modifications and choices made by caregivers are essential to maximize the benefit from books and stories to the child. If the child has some vision, selecting books with large, simple, high-contrast pictures rather than visually complicated pictures is preferable. For the totally blind child, stories with tactile objects to accompany the story is essential. Stories which tell about familiar activities such as bathtime, mealtime or short excursions generally hold more meaning and more potential for development of useful concepts and language than some traditional preschool stories about animals and fantasy themes. However, incorporation of simple nursery rhymes and songs into daily oral language activities should be embraced to encourage the child's awareness of the rhythm and melody of language, as well as the playfulness of words which rhyme or follow a melody. Asking children to dramatize nursery rhymes such as Humpty Dumpty, Little Miss Muffet or Wee Willie Winkie encourages concept building while developing the child's appreciation of the pleasures associated with both written and spoken language. Most children also enjoy playing simple games based on a favorite poem, story or book.

Augmentative communication devices are useful when searching for ways to include a visually impaired child in story reading time and to hold the child's attention. By selecting literature with repetitive phrases, a single message VOCA may be used by a student to insert the repetitive line when given an auditory cue or a tap on the shoulder or hand. Likewise, a two message device might be programmed with two comments for the child to insert when asked, such as "that's good" and "that's bad."

Use of computers with adapted keyboards allows the visually impaired child to explore and control a stimulating and responsive environment. Loaded with fun, widely available software options, the child may press a picture, tactile object, tangible symbol, braille word or switch and hear a favorite song, play with cars, trucks or airplanes, demonstrate how to make a sandwich, or create a rhyme or story. Software choices should be governed by quality of sound, level of visual contrast and presence of large, moving objects. The amount of visual or auditory clutter should be examined with respect to an individual childÕs needs.

SUMMARY

AAC strategies for young children with vision impairment and multiple disabilities must take into consideration the special challenges inherent in learning without vision. The use of AAC as part of a multiifacited intervention model can help teach the child the power of communication, give the child control over her environment, empower the child to make choices and provide the child with opportunities for inclusion and social interaction with peers. This fortified foundation will assist these young children in reaching their potential and becoming active members of society.

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